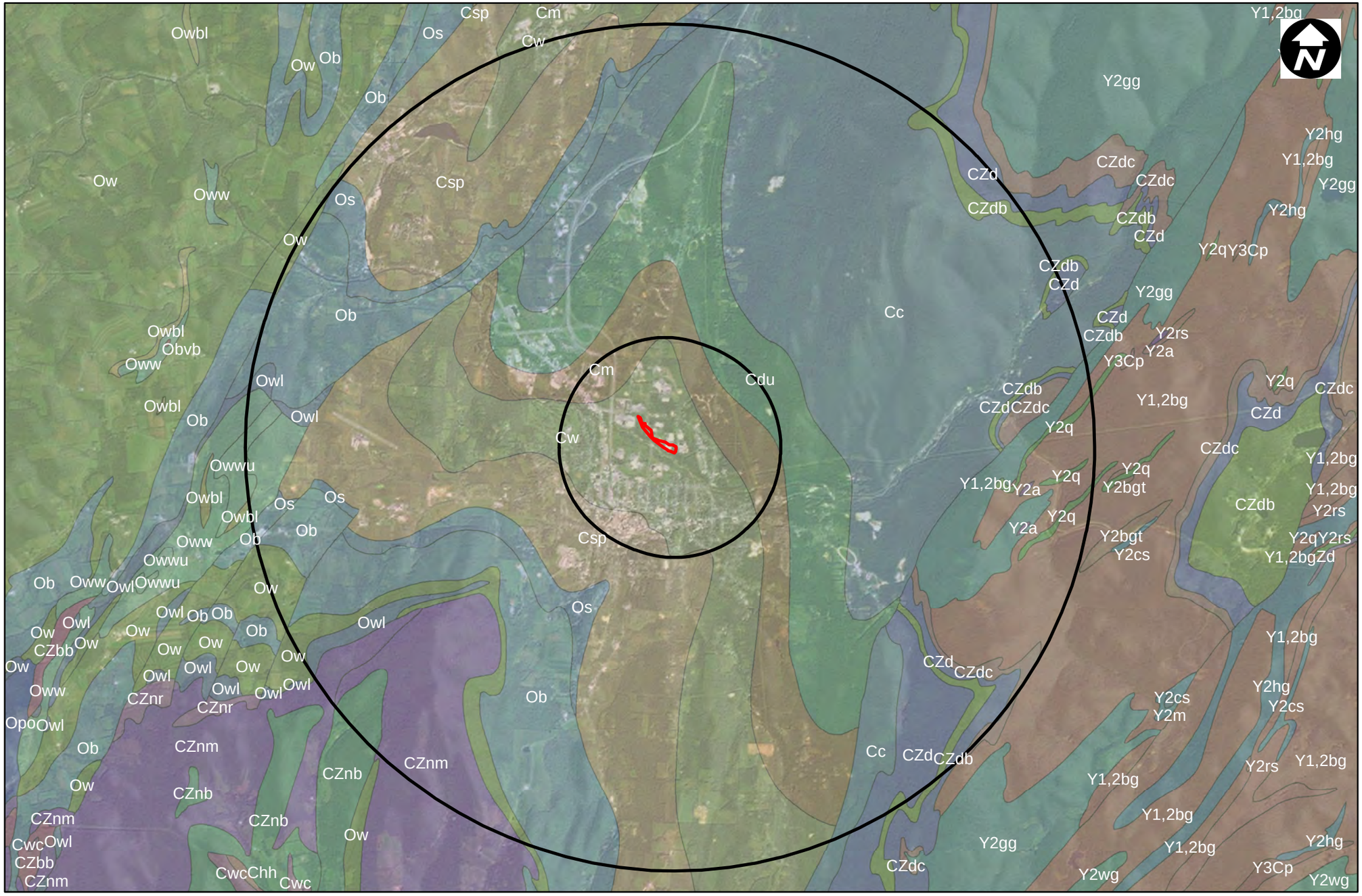
PROJECT NOTE

TO:	Project File
SUBJECT:	Jard Company HRS
TASK DESCRIPTION:	Bedrock Geology Data
TDD NO.:	01-13-09-0001
W.O. NO.:	20114-091-998-0904
TASK NO.:	80
DATE:	28 February 2014
PREPARED BY:	C. Dupree CMD

Weston Solutions, Inc. Superfund Technical Assessment and Response Team (START) obtained the "Bedrock Geology Contours" Geographic Information System (GIS) shapefile in the "State Plane Coordinate System 1983" coordinate system from the Vermont Center for Geographic Information website (http://vcgi.gov/) on 28 February 2014. The Bedrock Geology Contours shapefile contains digital information that delineates the solid material that underlies the soil or other unconsolidated material of the earth for Vermont.

For additional information on the information included in the shapefile, please see the metadata located in Attachment B.

Attachment A
Bedrock Geology Contours 1-Mile Map
Bedrock Geology Contours 4-Mile Map



Figure

Bedrock Geology Contours
4-Mile Map

Jard Company, Inc.
259 Bowen Road
Bennington, Vermont

EPA Region I
Superfund Technical Assessment and Response Team (START) III
Contract No. EP-W-05-042

TDD Number:	13-09-0001
Created by:	C. Dupree
Created on:	28 February 2014
Modified by:	
Modified on:	

LEGEND

- Four Mile Radius
- One Mile Radius
- Site Boundary

Data Sources:
Imagery: Bing Maps Aerials (Microsoft)
All other data: Weston START; Vermont Center for Geographic Information

Figure

Bedrock Geology Contours
1-Mile Map

Jard Company, Inc.
259 Bowen Road
Bennington, Vermont

EPA Region I
Superfund Technical Assessment and Response Team (START) III
Contract No. EP-W-05-042

TDD Number:	13-09-0001
Created by:	C. Dupree
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Modified on:	

LEGEND

- One Mile Radius
- Site Boundary

Data Sources:
Imagery: Bing Maps Aerials (Microsoft)
All other data: Weston START; Vermont Center for Geographic Information

Attachment B
Metadata for the Bedrock Geology Countours Shapefile
Vermont Center for Geographic Information

Bedrock Geologic Map of the Vermont

FGDC Metadata

Show Definitions

Description

Citation

Title: Bedrock Geologic Map of the Vermont
Originators: Nicholas M. Ratcliffe
Rolfe S. Stanley
Marjorie H. Gale
Peter J. Thompson
Gregory J. Walsh
Series name: Scientific Investigations Map
Series identification: 3184
Publisher: U.S. Geological Survey
Publication place: Reston, Virginia
Publication date: 2011
Edition: 1.0
Data type: Map
Data location: http://pubs.usgs.gov/sim/3184/
Other citation details: Ratcliffe, N.M., Stanley, R.S., Gale, M.H., Thompson, P.J., and Walsh, G.J., 2011, Bedrock geologic map of the Vermont: U. S. Geological Survey Scientific Investigations Map 3184, scale 1:100,000.

Description

Abstract: The bedrock geology was mapped to study the geologic and tectonic history of the State of Vermont. The digital data are intended for use by all government, academic, commercial, or other agencies in need of digital geologic map information.

Purpose: The bedrock geology was last mapped at a statewide scale 50 years ago at a scale of 1:250,000 (Doll and others, 1961). The 1961 map was compiled from 1:62,500-scale or smaller maps. The current map was created to integrate more detailed (1:12,000- to 1:24,000-scale) modern mapping with the theory of plate tectonics to provide a framework for geologic, tectonic, economic, hydrogeologic, and environmental characterization of the bedrock of Vermont.

Supplemental information: Additional contributions to the map were made by Norman L. Hatch, Jr., Douglas W. Rankin, Barry L. Doolan, Jonathan Kim, Charlotte J. Mehrtens, John N. Aleinikoff, and J. Gregory McHone. Digital cartography in Adobe Illustrator by Linda Masonic. GIS by Gregory J. Walsh. Topographic base maps from U.S. Geological Survey 1:100,000 Albany, MA-NY-VT, 1989; Claremont, NH-VT, 1985; Glens Falls, NY-VT, 1989; Keene, MA-NH-VT, 1986; Rutland, NH-VT, 1985; Ticonderoga, NY-VT, 1989; Lake Champlain North, VT-NH, 1981; Lake Champlain South, VT-NY, 1981; Mount Mansfield, VT, 1986; Montpelier, VT, 1986; Groveton, NH-VT-ME, 1988; and Mount Washington, NH-VT-ME, 1989. Printed map base projection and 10,000-meter grid, zone 18, Universal Transverse Mercator, 1927 North American Datum (NAD). In the Geographic Information System (GIS) database, the printed map was reprojected to the State Plane Coordinate System currently in use in Vermont, 1983 NAD. The printed map is accompanied by a GIS database, large format color sheets in Adobe Portable Document Format (PDF), and a readme.txt file.

Dataset credit: Additional contributions to the map were made by Norman L. Hatch, Jr., Douglas W. Rankin, Barry L. Doolan, Jonathan Kim, Charlotte J. Mehrtens, John N. Aleinikoff, and J. Gregory McHone. Digital cartography in Adobe Illustrator by Linda Masonic (USGS). Geographic Information System (GIS) database by Walsh.

Point Of Contact

Organization: U.S. Geological Survey
Person: Gregory J. Walsh
Position: geologist
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Fax: 802-828-4465
Email: gwalsh@usgs.gov
Address type: mailing address
Address: P.O. Box 628
City: Montpelier
State or Province: Vermont
Postal code: 05601
County: USA

Data Type

Data type: Map
Native dataset environment: ArcGIS shapefile format

Time Period of Data

Beginning date: 1989
Ending date: 2011
Currentness reference: publication date

Status

Data status: Complete
Update frequency: None planned

Key Words

Theme:
Keywords: geology, geologic, bedrock
Keyword thesaurus: None
Place:
Keywords: USA, Vermont, New York, New Hampshire, Washington County, Orange County, Franklin County, Essex County, Orleans County, Chittenden County, Lamoille County, Caledonia County, Addison County, Rutland County, Windsor County, Windham County, Bennington County
Keyword thesaurus: None

Data Access Constraints

Access constraints: Although all data released in this report have been used by the USGS, no warranty, expressed or implied, is made by the USGS as to the accuracy of the data and related materials and (or) the functioning of the software. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.
Use constraints: none

Spatial Reference Information

Horizontal Coordinate System

Coordinate System Details

Grid coordinate system

Grid coordinate system name: State Plane Coordinate System 1983
State Plane Coordinate System:
SPCS zone identifier: 4400
Transverse Mercator:
Scale factor at central meridian: 0.999964
Longitude of central meridian: -72.500000
Latitude of projection origin: 42.500000
False easting: 500000.000000
False northing: 0.000000

Planar Coordinate Information

Planar coordinate encoding method: coordinate pair
Coordinate representation:
Abscissa resolution: 0.000100
Ordinate resolution: 0.000100
Planar distance units: meters

Geodetic model

Horizontal datum name: North American Datum of 1983
Ellipsoid name: Geodetic Reference System 80
Semi-major axis: 6378137.000000
Denominator of flattening ratio: 298.257222

Spatial Domain

Bounding Coordinates

In Unprojected coordinates (geographic)

Boundary	Coordinate
West	-73.519802 (latitude)
East	-71.444478 (latitude)
North	45.018809 (longitude)
South	42.718156 (longitude)

Data Structure and Attribute Information

Overview

Entity and attribute overview: The geologic data layers in the GIS database of this report include, 1) CONTAX (contacts) - Polygon and arc data layers of bedrock geologic map units, contacts, and faults, including a polygon attribute table, 2) DIKES - Arc data layers of dikes, and 3) GEOCHRONO - Point data layer of U-Pb zircon geochronology sample locations.

Entity and attribute detailed citation: http://pubs.usgs.gov/sim/3184/Downloads/readme.txt

Direct spatial reference method: Vector

SDTS Feature Description

Spatial data transfer standard (SDTS) terms

Feature class

Type: Complete chain
Count: 32,125

Data Quality and Accuracy Information

General

Logical consistency report: These data are believed to be logically consistent, though no tests were performed. Geometry is topologically clean.

Completeness report: The geologic contacts were delineated on USGS 1:100,000-scale topographic base maps from published and unpublished observations. The features in the database are not based on legal parcels or definitions.

Attribute Accuracy

Attribute accuracy report: All attributes digitized during the creation process were verified by displaying the lines and points in the database with respect to the USGS 30 x 60 minute topographic base map (1:100,000 scale), but no formal tests were performed.

Positional Accuracy

Horizontal accuracy report: The data were delineated on USGS 30 x 60 minute topographic maps at 1:100,000 scale. The horizontal accuracy of solid lines and points is considered "approximate" and dotted lines are considered "concealed", according to the terminology set forth in the FGDC Digital Cartographic Standard for Geologic Map Symbolization (2006)
http://ngmdb.usgs.gov/fgdc_gds/geolsymstd.php

Vertical accuracy report: The data were delineated on a USGS 30 x 60 minute topographic maps at 1:100,000 scale. Therefore, the vertical accuracy of the base map is assumed to be within National Map Accuracy Standards. Vertical accuracy of the geologic data was not tested.

Data Source and Process Information

Process Steps

Process step information

Process Step 1

Process description: The geology was compiled at 1:100,000-scale from source maps ranging from 1:12,000- to 1:250,00-scale. The line and polygon data were first drafted with pen and ink on stable-base mylar greenlines of the 1:100,000-scale topographic base maps. Mylar greenlines were scanned and auto-vectorized in Adobe Illustrator. Film positive separates of the published topographic base maps were scanned and mosaicked in Illustrator. Illustrator line work was converted to Autocad DXF vector files and imported to Arc/Info version 9.3. Point data were heads-up digitized. Attribute data were compiled in Excel and joined with the shapefiles in ArcMap. Line and polygon data were edited in Arc/Info and converted to shapefiles. In ArcMap, layer files were created from the shapefiles. In ArcToolbox, Google Earth KMZ files were created from the layer files. Cartography was done in Adobe Illustrator CS4.

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Organization: U.S. Geological Survey

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Address type: mailing address

Address: P.O. Box 628

City: Montpelier

State or Province: Vermont

Postal code: 05601

County: USA
Process date: 2011
Data Source produced
Ratcliffe and others (2011)

Data Distribution Information

General

Resource description: USGS Scientific Investigations Map 3184
Distribution liability: These data were prepared by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, make any warranty, or implied, or assume any legal liability or responsibility the accuracy, completeness, or usefulness of any information, product or process disclosed in this report, and represents its use would not infringe privately owned rights. The act distribution shall not constitute any such warranty, and no responsibility is assumed by the USGS in the use of this data related materials. Reference therein to any specific commercial product, process, or related service by trade name, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring the United States Government or any agency thereof.

Distribution Point of Contact

Organization: U.S. Geological Survey - Information Services
Phone: 1-888-ASK-USGS
Email: ask@usgs.gov
Hours of service: 0900 to 1700 Mountain Standard Time
Address type: mailing address
Address: Box 25286, Denver Federal Center
City: Denver
State or Province: Colorado
Postal code: 80225
County: USA

Standard Order Process

Digital form:
Format name: ArcGIS Shapefile
Format version number: 9.3.1
Format information content: Geologic units and sample location features
File decompression technique: unzip
Digital transfer option:
Online option:
Computer information:
Network address:
Network resource name: http://pubs.usgs.gov/sim/3184/downloads/SIM3184.zip OR http://pubs.usgs.gov/sim/3184/downloads/SIM3184_nobase.zip

Digital form:
Format name: Google Earth
Format version number: 5.2
Format information content: Geologic units and sample location features
File decompression technique: unzip
Digital transfer option:
Online option:

Computer information:
Network address:
Network resource name: http://pubs.usgs.gov/3184/downloads/SIM3184GE.zip

Digital form:
Format name: Adobe Acrobat
Format version number: 1.5
Format information content: Bedrock geologic map in 4 sheets
File decompression technique: none
Digital transfer option:
Online option:
Computer information:
Network address:
Network resource name: http://pubs.usgs.gov/sim/3184/

Fees: none

Metadata Reference

Metadata Date

Last updated: 20100816

Metadata Point of Contact

Organization: USGS
Person: Gregory J. Walsh
Position: geologist
Phone: 802-828-4528
Address type: mailing address
Address: P.O. Box 628
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State or Province: Vermont
Postal code: 05601
County: USA

Metadata Standards

Standard name: FGDC Content Standards for Digital Geospatial Metadata
Standard version: FGDC-STD-001-1998

FGDC Plus Metadata Stylesheet

Federal Geographic Data Committee